Differential Pressure Gauges
Diaphragm Element Series
Type 732.51 All-welded Construction

Applications
- For gaseous and liquid aggressive media that are not highly viscous or crystallizing. Also suitable in aggressive environments
- Monitoring and control of pumps
- Filter monitoring
- Level measurement in closed tanks

Product Features
- Differential pressure measuring ranges from 0 … 6” WC (16 mbar)
- High working pressure (static pressure) up to 600 psi (40 mbar)
- High overpressure safe up to 600 psi (40 mbar)
- All welded media chamber

Description
These differential pressure gauges are made of highly corrosion-resistant stainless steel and feature an all-metal, all-welded media chamber to ensure long-term leak tightness (no elastomer sealing elements).

A high overpressure safety is achieved by the all-metal construction and the contoured design of the pressure measuring diaphragm.

The high-grade stainless steel construction and robust design is ideal for chemical and process engineering applications. It is suitable for gaseous or liquid media, also and aggressive environments.

Differential pressure from ranges 0 … 6” WC (16 mbar) to 0 … 360 psi (25 bar) are available to meet the requirements of a wide variety of applications.

Specifications

Design
Lower mount process connections, highly corrosion-resistant all-metal construction, measuring cell protected against tampering. Location of process connection can be modified to mounting requirements. WIKA trade pattern DT - GM 86 08 176

Sizes
4” (100 mm)
6” (160 mm)

Accuracy Class
1.6

Ranges
6” WC (16 mbar) to 0 … 360 psi (25 bar)
Scale range 0 … 6” WC (16 mbar): Scale length approx. 180 ∆ °
Other equivalent differential pressure ranges or compound ranges available.

Working Pressure
Steady: full-scale value
Fluctuating: 0.9 x full-scale value
**Overpressure safety**  
see table on page 3

**Max. working pressure (static pressure)**  
see table on page 3

**Operating Temperature**  
Ambient: -4°F to +140°F (-20°C to +60°C)  
Medium: +212°F (+100°C) maximum

**Temperature error**  
Additional error when temperature changes from reference  
temperature of 68 °F (20 °C) ± 0.5% of span for every  
18 °F (10 °K) rising or falling

**Ingress protection**  
NEMA 3 (IP 54) per EN 60529 / IEC 529  
NEMA 4 (IP 66) with liquid filling

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**Design and operating principle**

- Positive and negative media chambers are separated by  
  the diaphragm element (1)
- Metal bellows (2) isolate the pressure chambers from  
  atmosphere
- The pressure differential between the positive and  
  negative media chambers leads to an axial deflection of  
  the pressure element
- The deflection is transmitted to the movement (4) with a  
  push rod (3)
- The movement converts the axial deflection into a  
  clockwise pointer travel
- The overpressure safety is ensured by an all-metal  
  construction and a tight-fitting contoured diaphragm (5)

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**Principle Illustration**

Mounting according to affixed symbols  
⊕ high pressure and ⊖ low pressure.
Measuring chamber with process connection (wetted)
316 SS  
lower mount (LM),  
2 x ¼" NPT female

Pressure elements (wetted)
≤ 100" WC (250 mbar): 316 SS  
> 100" WC (250 mbar): NiCr-alloy (Inconel®)

Sealing bellows (wetted)
316 SS

Venting of the media chambers (wetted)
316 SS for scale ranges ≤ 100" WC (250 mbar)  
(optional for scale ranges > 100" WC)

Movement
Stainless steel

Dial
Aluminium, white, black lettering

Pointer
Model 732.51: Adjustable pointer, aluminium, black  
Model 733.51: Standard pointer, aluminium, black

Case
Stainless steel, with pressure relief disc

Window
Laminated safety glass

Bezel ring
Bayonet ring, stainless steel

Gauge Mounting
Pressure ports marked ⊕ and ⊖  
⊕ high pressure  
⊖ low pressure

Mounting by means of:
■ Direct mounting  
■ Mounting holes in measuring flange  
■ Front flange (optional)  
■ Mounting bracket for wall or pipe mounting (optional)

Options
■ Liquid filling (model 733.51)  
■ Solid front safety design (model 73x.31)  
■ Increased max. working pressure (static pressure) and  
  higher overpressure safety (see table)  
■ Accuracy better than class 1.6  
■ Venting of the media chambers (wetted) for scale ranges  
  > 100" WC (250 mbar)  
■ External zero adjustment  
■ Lateral connection location (right, left, front or back)  
■ Other threaded process connections, female or male  
■ Medium temperature > 212 °F (100 °C)  
■ Admissible ambient temperature -40 °F ... +140 °F  
  (-40 °C ... +60 °C) (silicone oil filling)  
■ Mounting bracket for wall or pipe mounting  
■ Panel mounting flange  
■ Version per ATEX Ex II 2 GD c TX  
■ Pressure equalizing valve

Max. working pressure, overpressure safety

<table>
<thead>
<tr>
<th>Scale ranges</th>
<th>Max. working pressure in psi (static pressure)</th>
<th>Overpressure safety in psi either side max.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
<td>Optional</td>
</tr>
<tr>
<td>0 ... 6 to 0 ... 16&quot; WC *</td>
<td>36 (2.5 bar)</td>
<td>87 1) (6 bar)</td>
</tr>
<tr>
<td>0 ... 25 to 0 ... 100&quot; WC **</td>
<td>87 (6 bar)</td>
<td>150 (10 bar)</td>
</tr>
<tr>
<td>0 ... 160&quot; WC (0...400 mbar)</td>
<td>360 (25 bar)</td>
<td>600 (40 bar)</td>
</tr>
<tr>
<td>0 ... 8 psi (0...0.6 bar)</td>
<td>360 (25 bar)</td>
<td>600 (40 bar)</td>
</tr>
<tr>
<td>0 ... 15 psi (0...1 bar)</td>
<td>360 (25 bar)</td>
<td>600 (40 bar)</td>
</tr>
<tr>
<td>0 ... 25 psi (0...1.6 bar)</td>
<td>360 (25 bar)</td>
<td>600 (40 bar)</td>
</tr>
<tr>
<td>0 ... 36 to 0 ... 360 psi ***</td>
<td>360 (25 bar)</td>
<td>600 (40 bar)</td>
</tr>
</tbody>
</table>

1) Accuracy class 2.5  
* (0...16 to 0...40 mbar)  
** (0...60 to 0...250 mbar)  
*** (0...2.5 to 0...25 bar)
**Dimensions in ”**

**Standard version**
Connection 2 x ¼” NPT female, lower mount (LM)

**Option**
Mounting bracket for wall or pipe mounting

<table>
<thead>
<tr>
<th>NS</th>
<th>Scale range</th>
<th>Dimensions in ”</th>
<th>Weight in lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>≤ 100” WC</td>
<td>a 0.61, b 1.95, D1 3.97, D2 3.90, d 5.51, e 0.69, G ¼ NPT-F 7.60, h ±1 3.54</td>
<td>F 4.49, C1 3.78, C2 4.66, Total 5.94</td>
</tr>
<tr>
<td>100</td>
<td>&gt; 100” WC</td>
<td>a 0.61, b 1.95, D1 3.97, D2 3.90, d 3.07, e 0.69, G ¼ NPT-F 7.60, h ±1 3.42</td>
<td>F 4.49, C1 2.60, C2 3.46, Total 4.18</td>
</tr>
<tr>
<td>160</td>
<td>≤ 100” WC</td>
<td>a 0.61, b 1.95, D1 6.34, D2 6.26, d 5.51, e 0.69, G ¼ NPT-F 8.78, h ±1 4.72</td>
<td>F 5.67, C1 3.78, C2 4.66, Total 7.48</td>
</tr>
<tr>
<td>160</td>
<td>&gt; 100” WC</td>
<td>a 0.61, b 1.95, D1 6.34, D2 6.26, d 3.07, e 0.69, G ¼ NPT-F 8.78, h ±1 4.61</td>
<td>F 5.67, C1 2.60, C2 3.46, Total 5.28</td>
</tr>
</tbody>
</table>

Process connection per EN 837-1 / 7.3

**Ordering information**
Model / Nominal size / Scale range / Scale layout (linear pressure or square root incrementation) / Max. working pressure (static pressure) ... bar / Connection size / Connection location / Options